6.111 Final Project Abstract

Team: Christine Konicki and Mikhail Rudoy

Immersive 3D World

For the 6.111 final project, we propose to build a digital system for a user to explore an immersive 3D world. The end result will be either a game played in this virtual world or just a demo allowing the user to "walk through" the world. The project will consist of the core feature (3D graphics) together with a variety of other features improving a user's immersion into the virtual world. We plan to use either a wireframe or polygon model for the graphics system, with support for a moving and rotating viewpoint. In addition to being able to render graphics and move around the world, we also plan to implement some subset of the following features:

- *Audio*: the system will play sounds (i.e. background music or the sound of footstep) through the user's headphones.
- *Gyroscope tracked view angle*: a gyroscope attached to the headphones will provide the pitch and yaw of the user's head. We will use this to assume a viewing direction, and rotate the in-world viewpoint accordingly. For example, as the user turns her head to the right, the contents of the screen will move left, allowing the user to see further to the right in the world.
- *Handheld controller movement*: movement will be controlled with a game console controller
- *Game logic*: we will implement a game inside this world.